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LENINGRAD METAL PLANT IMENI STALIN TO CONSTRUCT TURBINES FOR 3 GES

ENLISTS AID OF INSTITUTES -- Leningradskaya Pravda, 15 Mar 51

The hydroturbines for the Stalingrad and Kuybyshev GES will be built at the Leningrad Metal Plant imeni Stalin. Rough plans of the machines have already been drawn up, and the final diameter of the rotor wheels has been determined. In this great project, the plant is being assisted by representatives from many scientific foundations, including the All-Union Institute for Hydraulic Machine Building, the Institute of Machine Sciences of the Academy of Sciences USSR, and the Leningrad Polytechnical Institute imeni Kalinin.

The scientists are now helping the plant to find new materials for the turbine blades. Ordinarily, the manufacture of the six blades with which each turbine will be equipped would take 19 tons of stainless steel. In an effort to cut costs, the plant is striving to substitute simple carbon steel for the high-cost, scarce steel in general use. The institute's Design Bureau and laboratories are studying annealing methods for case hardening these parts, this work being directed by V. P. Vologdin of the Academy of Sciences USSR.

The problem of turning out parts with minimum allowances is also vital to the success of the turbine builders, since a great deal of time and effort can be saved by keeping castings within the limits indicated on the blueprints. This responsibility devolves largely upon the Novo-Kramatorsk Plant imeni Stalin, which is supplying the Leningrad Metal Plant imeni Stalin with castings.

Problems in connection with the great hydroturbines will be studied through observation of the performance of two model turbines, one of 750 and the other of 2,500 kilowatts capacity. Working plans and the technology for manufacturing these models have already been drawn up.

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The plant has also been given the task of building the hydroturbines for the projected Tsimlyanskaya GES. These turbines will have the runner-shaft thrust bearings in the top part of the turbine housing. This will permit the power station to be 3 meters lower than would ordinarily be required for turbines of such magnitude, thereby saving several million rubles in construction expenses.

Several Leningrad enterprises are making parts for the Tsimlyanskaya hydroturbines. The Nevskiy Plant imeni Lenin has already sent the Leningrad Metal Plant imeni Stalin the first castings for the turbine mountings. -- M. Bushuyev, chief engineer, Leningrad Metal Plant imeni Stalin

TURBINES TO HAVE 92 PERCENT EFFICIENCY -- Moscow, Pravda, 21 Mar 51

The hydroturbines which the Leningrad Metal Plant imeni Stalin is building for the future Tsimlyanskaya GES will be the largest and most powerful of their type in the world, according to the plant's chief hydroturbine designer, N. N. Kovalev.

The runners will have six pivoted blades, and their use at the GES, where it is estimated the water head will vary from 17-24 meters, will constitute a world-wide innovation, since this type of runner is ordinarily used for low-head installations. Each turbine is to have an efficiency of 92 percent, and several of the turbines will provide the planned power output for the 160,000-kilowatt station.

The mechanisms for starting the turbines and limiting the load, and other controls and safety devices will be entirely automatic.

Great credit for the designing goes to Kovalev and the designers working under him, especially to Ya. S. Degtyarev, chief designer for the Tsimlyansk turbines, and to F. V. Anosov, director of the hydroturbine laboratory, who has contributed valuable work on the water-channeling aspects of the design.

The original design for the runner called for all-cast construction, and blueprints for it were accordingly sent to the Kramatorsk Plant. Here, however, the designers proposed that the runner be of combined cast and welded construction. Backed up by the authority of Ye. O. Paton, director of the Institute of Electric Welding, the suggestion of the Kramatorsk designers was agreed upon, since it promised reduction in cost and speedier completion.

Other parts for the hydroturbines have already been cast and shipped to the Metal Plant imeni Stalin from the Leningrad Nevskiy Plant imeni Lenin. These include brackets, control levers, and other parts for the runners.

V. V. Kozharinov, director of the Leningrad Metal Plant imeni Stalin, points out that the Tsimlyanskaya GES is scheduled to open in the spring of next year, and that all the hydroturbine equipment has to be completed and sent to the construction site this year.

WILL STUDY MODELS PRIOR TO BUILDING GIANT TURBINES -- Petrozavodsk, Leninskoye Znamya, 4 Apr 51

The hydroturbines which the Leningrad Metal Plant imeni Stalin will build for the Stalingrad and Kuybyshev GES will weigh about 1,600 tons each. The runners, 9 meters in diameter and weighing about 400 tons, will be of the propeller type, with six pivoting blades.

Before starting actual work on these giants, the plant will study models of them, one tenth their actual size. Plans have been completed for the model of the Kuybyshev hydroturbines, and a special testing place is being constructed for both models on the Canal imeni Moskva. Experiments on the models are to be conducted this year. -- N. N. Kovalev, chief hydroturbine designer, Leningrad Metal Plant imeni Stalin

BLADES TO BE OF STAINLESS STEEL -- Moscow, Komsomol'skaya Pravda, 29 Apr 51

The turbogenerator aggregates which are to be installed at the Kuybyshev GES will weigh over 3,000 tons each; the outside diameter of the generator will be nearly 20 meters.

The Leningrad Metal Plant imeni Stalin is going to build the turbines for these aggregates. The runner shaft, which will be affixed to the rotor of the generator, will be over one meter in diameter. The runner blades will be made of stainless steel, and will weigh 25 tons each.

TURBINE BLADES NEAR COMPLETION -- Moscow, Moskovskiy Komsomolets, 5 Jul 51

The Leningrad Metal Plant imeni Stalin has begun the finishing operations on the castings of the blades for the first hydroturbine destined for the Tsimlyanskaya GES.

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